

The Development of a Medicinal Plant Germplasm Collection at the North Central Regional Plant Introduction Station

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History

Currently in its second year of operation and funded by both USDA/ARS and NIH/ODS, The Medicinal collection is the newest germplasm collection held at the NCRPIS. Initial collection and acquisition emphasis has been focused primarily on *Echinacea*, *Hypericum* and *Actaea* sp.

An extensive medicinal species database (4,552 taxa) has been compiled from 27 compendia and checked against GRIN. Of the 4,552 taxa identified, 29% are currently available via GRIN. The list has been correlated to current NPGS accessions for identification of gaps in collection holdings. These gaps will help identify priority species for future collection and acquisition efforts.

Two domestic collection trips have been completed with a third foreign collection trip proposed for the Republic of Georgia to target various medicinal species.

The medicinal collection has been utilized for various research projects, ranging from ornamental breeding studies, to animal and human bioassay experiments, to HPLC analyses of metabolites of interest to the phytopharmaceutical industry.

Program Objectives

- Conservation of genetically-diverse medicinal crop germplasm through collection and acquisition
- Regeneration through control pollination to produce seed for distribution
- Encourage the use of the medicinal collection for research, crop improvement and product development
- Identification of the current status of medicinal genera held in the NPGIS



Echinacea Collection

Echinacea based products are ranked #2 in top-selling dietary supplements*. Representing all nine species collected throughout their respective North American geographic range, the comprehensive *Echinacea* collection includes 159 accessions. The collection was primarily collected by Kathleen McKeown in 1997 and developed by Mark Widrlechner. Extensive morphological characterization data associated with this collection have been compiled and are available to researchers via the Germplasm Resources Information Network (GRIN).

Hypericum Collection

Hypericum perforatum (St. John's Wort) based products are ranked #9 in top-selling dietary supplements*. The new *Hypericum* collection includes 151 accessions representing 51 taxa collected throughout their respective international geographic ranges. The collection contains 56 accessions of *H. perforatum*. A morphological characterization descriptor list has been created. Current collection efforts will be prioritized for acquisition of additional *Hypericum* species.

Actaea Collection

Actaea racemosa (black cohosh) based products are ranked #8 in top-selling dietary supplements*. We are currently propagating 25 accessions of *Actaea racemosa* collected throughout their native North American geographic range. If the accessions prove Midwest-hardy throughout a second season we will increase collection and acquisition efforts.

Future Collection Efforts

After analysis of a recent inventory of medicinal plants represented in the NPGS, a list of 3,164 taxa has been compiled which are not included in our collections. These species will be prioritized by a variety of factors ranging from economic use to conservation status, which will result in a target list of priority species on which to focus future collection and acquisition effort.

*Blumenthal, M. (2005) Market Report: FDM Market Sales Data for Herbal Supplements. Information Resources Inc. HerbalGram. 66:63.

Research Impact: (2004-2005 publications directly associated with accessions)

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